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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : B29C 45/17 — A1

(11) International Publication Number: **WO 96/34731**

(43) International Publication Date: 7 November 1996 (07.11.96)

(21) International Application Number: PCT/EP96/01849

(22) International Filing Date: 3 May 1996 (03.05.96)

(30) Priority Data:

195 15 741.9	3 May 1995 (03.05.95)	DE
08/492,589	21 June 1995 (21.06.95)	US

(81) Designated States: AU, BR, CA, CN, JP, KR, MX, RU, SG, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

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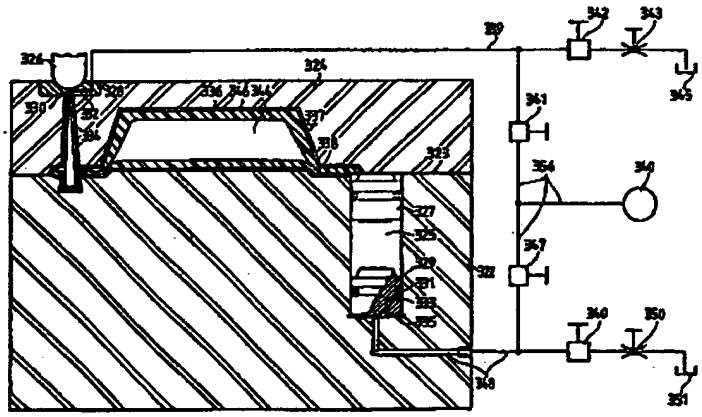
(54) Title: METHOD AND SYSTEM FOR INJECTION MOLDING UTILIZING A VARIABLE VOLUME SPILL CAVITY AND ARTICLE PRODUCED THEREBY



(57) Abstract

A method and system for injection molding plastic articles which utilize a spill cavity (325) whose volume varies. In one embodiment, the volume varies during introduction of pressurized gas into a mold cavity flow coupled to the spill cavity. In another embodiment, the volume of the spill cavity varies during a plastic injection which fills the mold cavity. A piston (329) reciprocally mounted within a cylinder (327) defines the variable volume of the spill cavity. In one embodiment, a pneumatic control circuit (166) controls the pressure on a lower surface of the piston to thereby control the position of the piston within the cylinder and therefore the volume of the spill cavity. In another embodiment, an air spring (188) is utilized to control pressure on the piston which counters the pressure of the plastic on the piston. In one embodiment, a stop pin (144) connected to the piston prevents the piston from leaving the cylinder when the mold is opened and solidified plastic in the spill cavity is to be ejected therefrom. An ejector pin (186$^{(4)}$) ejects plastic after it is pulled out of the spill cavity. Various ways of introducing a controlled amount of gas pressure at the lower surface of the piston are provided including through the stop pin.